5-3-2014

Spectrofluorometric Quantification of Optical Brighteners in Ambient Water

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A spectrofluorometric method was established and used to detect and quantify optical brighteners (OB) in ambient water samples. Optical brighteners are added to products such as laundry soaps, detergents, and cleaning agents for the purpose of making the fabric appear brighter after washing. Because a large fraction of OBs are discharged into wastewater, they are ideal for use as indicators of failing septic systems, sewage leaks, or lack of wastewater treatment. The method described here uses moderately priced equipment to provide rapid and accurate detection of minute levels of contamination. Standard curves were prepared with disodium diaminostilbene disulfonate solutions ranging in concentration from 0.3 ppm to 70 ppm. Linear plots with R2 values of ≥ 0.987 were obtained for the standard curves, which were then used to determine the concentration of optical brighteners in water samples.

Information about the Author:
Sean Kennedy is currently a senior with a major in chemistry and a dual minor in mathematics and human biology. He is interested in attending medical school in the future. He finds the topic very interesting because of the abundance of problems with water quality in the area. Water is the most important molecule, and improving the quality is necessary for the survival of ecosystems and communities all across the world.

Faculty Sponsor: Dr. Jon Schoer

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